



ROG

MAXIMUS

X APEX

Motherboard

T13598

2.00

2017 11

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<http://>

support.asus.com 0800-093-456

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1.02G2.03G ...

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ROG MAXIMUS X APEX	
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Q-Code

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REACH

REACH Registration, Authorisation, and Restriction of Chemicals

REACH

<http://csr.asus.com/english/REACH.htm>

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無線設備的警告聲明

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更射頻、加大功率或變更原設計之特性及功能。低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信指依電信法規定作業之無線通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

於 5.25GHz 至 5.35GHz 區域內操作之
無線設備的警告聲明

工作頻率 5.250 ~ 5.350GHz 該頻段限於室內使用。



(Pb

(Hg

(Cd

(Cr+6

(PBB

(PBDE

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1. "○"

2. "—"

RF

NCC: Taiwan Wireless Statement

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• BIOS

BIOS

BIOS

- RAID

RAID

1.

<http://tw.asus.com>

2.

ix

<http://www.asus.com/tw/support/Service-Center/Taiwan>

0800-093-456

X

ROG MAXIMUS X APEX

LGA1151

Intel® Core™ i7/Core™ i5/ Core™ i3/

Pentium® /Celeron®

14nm

Intel® Turbo Boost 2.0 *

*

Intel® Turbo Boost 2.0

tw.asus.com Intel®

Intel® Z370

2 x 32GB DDR4 2666+ (OC

* / 4133+(OC* / 4000(OC* / 3866(OC* / 3733(OC

* / 3600(OC* / 3466(OC* / 3400(OC* / 3333(OC

* / 3300(O C* / 3200(O C* / 3000(O C* / 2800(O C* /
2666(OC* / 2400(OC* / 2133 MHz unbuffered non-ECC

Intel® Extreme Memory ProfileXMP

*

tw.asus.com QVL

Gen Intel® Core™

2 x PCIe 3.0 x16 x16 x8/x8

1 x PCIe 3.0 x16 x8/x4

Intel® Z370

1 x PCIe 3.0 x16 x4

2 x PCIe 3.0 x1

—Intel® HD Graphics VGA

HDMI DisplayPort

- DisplayPort 1.2 4096 x 2304 @

60Hz

- HDMI 1.4b 4096 x 2160 @ 30Hz

1024MB

Intel® Z370 RAID 01510

Intel® Rapid Storage Technology 15

ROG DIMM.2

- 1 x M.2_1 3 M Key 2230/2242/2260/2280/22110

PCIe 3.0 x4 SATA

- 1 x M.2_2 3 M Key 2230/2242/2260/2280/22110

PCIe 3.0 x4

4 x SATA 6 Gb/s

- Intel® Smart Response *

- Intel® Optane™ **

*

** Intel® Intel® Optane™

Intel® Optane™

BIOS

xi

ROG MAXIMUS X APEX

Aquantia AQC-108 5G LAN

Intel® I219-V Gigabit LAN —

MACPHY

LANGuard

NVIDIA® 2-Way/Quad-GPU SLI™

AMD® 4-Way/Quad-GPU CrossFireX™

ROG SupremeFX S1220A 8

- 32-Bit/192kHz *

- I m p e n d a n c e

sense

- J a c k - D e t e c t i o n

m u l t i - s t r e a m i n g J a c k -

Retasking

- S/PDIF

*

HDA 32-Bit/192kHz

USB

Intel® Z370

- 8 x USB 3.1 Gen 1 []

- 6 x USB 2.0 []*

ASMedia® USB 3.1

- 2 x USB 3.1 Gen 2 Type-A [] Type-C

[]

*

USB 2.0

ROG ROG_EXT

1 x Clear CMOS

1 x BIOS Flashback

1 x PS/2

1 x PS/2

1 x HDMI 1.4b

1 x Display 1.2

6 x USB 3.1 Gen 1 []

1 x 5G LANRJ-45

1 x Anti-surge LANRJ-45

2 x USB 3.1 Gen 2 Type-A []

Type-C []

1 x S/PDIF

5 x

xii

ROG MAXIMUS X APEX

1 x USB 3.1 Gen 1 2 USB 3.1 Gen 1

3 x USB 2.0 6 USB 2.0 [

ROG_EXT]

4 x SATA 6.0 Gb/s

1 x DIMM.2

1 x ROG ROG_EXT

1 x 4-pin CPU

1 x 4-pin CPU_OPT

3 x 4-pin

1 x 4-pin

1 x 4-Pin AIO_PUMP

2 x

3 x 4-Pin FS_FAN

1 x 24-pin EATX

2 x 8-pin EATX 12V

1 x W_IN

1 x W_OUT

I/O

1 x W_FLOW

1 x

1 x

1 x LN2

1 x MemOK!

4 x Aura RGB

1 x AAFP

1 x TPM

1 x BIOS

1 x Slow

1 x PCIe x16

9 x ProbeIt

1 x EZ Plug

1 x

3 x LED ON/OFF M.2_LIGHT, LIGHT_BAR1, LIGHT_
BAR2

1 x

xiii

ROG MAXIMUS X APEX

AURA

ROG RAMDisk

ROG RAMCache II

ROG CPU-Z

ROG Mem TweakIt

Overwolf

CloneDrive

Kaspersky®

DAEMON Tools Software

WinZip

Fan Xpert 4

ROG

Extreme Engine Digi+

- MicroFine Alloy Choke

- NexFET MOSFETs

- 10K

M.2 ROG DIMM.2

ROG APEX

Clear CMOS

MemOK!

LN2

Slow

ROG RAMDisk

ROG RAMCache II

UEFI BIOS

- Extreme Tweaker
- Tweaker's Paradise
- ROG SSD Secure Erase
- GPU Post
- O.C. Profile
- Graphics Card information

ROG MAXIMUS X APEX

- TPUEPUDIGI+

Fan Xpert 4 Turbo App

- AI Suite 3

- 3D

EZ DIY

- USB BIOS Flashback

- CrashFree BIOS 3

- EZ Flash 3

- C.P.R.CPU

- MemOK!

Q-Design

- Q-Code

- Q-Shield

- Q-Connector

- Q-LEDCPU [] [] []

[]

-

- SafeDIMM

BIOS

2 x 128Mb Flash ROMUEFI AMI BIOSPnPDMI3.0

WfM 2.0SM BIOS 3.0ACPI 6.0 BIOS

ASUS EZ Flash 3 ASUS CrashFree BIOS 3

F11 EZ Tuning F6 Qfan ControlF3 My

FavoritesLast Modified LogF12

PrintScreen F3 ASUS DRAM SPDSerial

Presence Detect

WfM 2.0DMI 3.0WOL by PMEPXE

Windows® 10 64

EATX

12 x 9.6 30.5 x 27.2 X PCB

ROG MAXIMUS X APEX

2 x SATA 6.0Gb/s

1 x RGB

1 x ROG DIMM.2

1 x ROG APEX

1 x SLI™ HB 2-way-L

1 x Q-Connector

1 x ROG

1 x CPU

1 x M.2

1 x ROG

ROG

Phillips

PC

Intel® LGA1151

Intel® LGA1151

SATA

SATA

xvii

xviii

1.1

1.1.1

-

-

-

-

- ATX

OFF

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ROG MAXIMUS X APEX

1-1

1.1.2

1.1.9

2.3.1

1-2

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1.

CPU, CPU optional, full speed, water pump+, AIO pump, and chassis

fan connectors4-pin CPU_FAN; 4-pin CPU_OPT; 4-pin FS_FAN1-3;

1-22

4-pin W_PUMP+; 4-pin AIO_PUMP; 4-pin CHA_FAN1-3

2.

ATX power connectors24-pin EATXPWR; 8-pin EATX12V_1; 8-pin

1-25

EATX12V_2; 4-pin EZ_PLUG

3.

LGA1151 CPU Socket

1-4

4.

DDR4 DIMM slots

1-5

5.

DIMM.2 slotDIMM.2_SLOT

1-28

6.

RESET buttonRESET

1-9

7.

Power-on buttonSTART

1-9

8.

ReTry buttonRETRY_BUTTON

1-12

9.

Safe Boot buttonSAFE_BOOT

1-11

10. AURA RGB headers4-pin RGB_HEADER1-4

1-27

11. Q-Code LED

1-18

12. Slow Mode switchSLOW_MODE

1-11

13. Pause switchPAUSE

1-13

14. RSVD switchRSVD

1-14

15. PCIe x16 Lane switchPCIEX16_SW1

1-13

16. LN2 Mode jumper3-pin LN2_MODE

1-15

17. ProbeIt

1-30

18. USB 3.1 Gen 1 connector20-1 pin U3G1_12

1-20

19. Intel® Z370 Serial ATA 6 Gb/s connectors7-pin SATA6G_12;

1-19

SATA6G_34

20. M.2 light jumper3-pin M.2_LIGHT

1-15

21. Light bar jumpers3-pin LIGHT_BAR1-2

1-16

22. Thermal sensor connectors2-pin T_SENSOR1-2

1-20

23. Water in, water out, and water flow connectors2-pin W_IN; 2-pin

1-29

W_OUT; 3-pin W_FLOW

24. System panel connectors10-1 pin F_PANEL; 4-pin SPEAKER

1-26

25. BIOS Switch buttonBIOS_SWITCH

1-12

26. USB 2.0 connectors10-1 pin USB910; USB1112; USB1314

1-21

27. ROG Extension connector18-1 pin ROG_EXT

1-24

28. TPM connector14-1 pin TPM

1-29

29. MemOK! buttonMemOK!

1-10

30. Front panel audio connector10-1 pin AAFP

1-24

ROG MAXIMUS X APEX

1-3

1.1.3 CPU

LGA1151

Intel® Core™ i7 / Intel® Core™ i5 /

Intel® Core™ i3 / Pentium® Celeron®

LGA1151

LGA1150LGA1155 LGA1156 LGA1151

- CPU

- LGA1151

-

L G A1151

R e t u r n

Merchandise AuthorizationRMA

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1-4

1.1.4

DDR4Double Data Rate 4

DDR4 DDR3DDR2 DDR

DDR3DDR2 DDR

ROG MAXIMUS X APEX

1-5

2GB4GB8GB 16GB unbuffered non-ECC DDR4

Channel AChannel B

- SPDSerial Presence Detect

- 2 DIMMs

- CAS Latency

D/C

1-6

1.1.5

1

PCIe X16/X8_1

2

PCIe X4_2

3

PCIe X1_1

4

PCIe X8/X4_3

5

PCIe X1_2

6

PCIe X4_4

ROG MAXIMUS X APEX

1-7

PCIe

VGA

PCIe_x16/X8_1

PCIe_x8_2

x16

VGA/PCIe

x8

VGA/PCIe

x8/x8

x4/x4

- CrossFireX™ SLI™

-

A

B

C

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I.G.F.X

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Intel XHCI

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SATA

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Intel LAN

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PCIEX16/X8_1

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PCIEX4_2

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PCIEX8/X4_3

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PCIEX4_4

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PCIEX1_1

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PCIEX1_2

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ASMedia 2142

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M.2_1

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M.2_2

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1-8

1.1.6

1. START

2. RESET

ROG MAXIMUS X APEX

1-9

3. MemOK! MemOK!

MemOK

DRAM_LED MemOK! DRAM_LED

- 1.1.8 LED DRAM_LED

- DRAM_LED

MemOK!

- MemOK! Windows

-

DRAM_LED

-

DRAM_LED

tw.asus.com

-

510

- BIOS MemOK!

BIOS

BIOS

- MemOK! tw.asus.com

BIOS

1-10

4. SAFE_BOOT

BIOS

BIOS

5. Slow Mode SLOW_MODE

LN2

Slow Mode

ROG MAXIMUS X APEX 1-11

6. RETRY_BUTTON

Reset

POST

7. BIOS BIOS_SWITCH

BIOS BIOS BIOS BIOS

BIOS_LED BIOS

1-12

8. PCIe x16 PCIEX16_SW1

PCIe x16

PCIe x16

9. PAUSE

ROG MAXIMUS X APEX 1-13

10. RSVD RSVD

1-14

1.1.7

1. LN2 3-pin LN2_MODE

LN2

POST

2. M.2 3-pin M.2_LIGHT

M.2

ROG MAXIMUS X APEX 1-15

3. 3-pin LIGHT_BAR1-2

1-16

1.1.8 LED

1. Q CPU, DRAM, VGA, BOOT

Q CPU

Q

2. Condensation detection LEDs

CPU PCIe

ROG MAXIMUS X APEX 1-17

3. Q-Code

Q-Code 2 Q-Code

- Q-Code

- Q-Code

1-18

1.1.9

1. Intel® Z370 Serial ATA 6.0 Gb/s 7-pin SATA6G_12,
SATA6G_34

Serial ATA 6.0 Gb/s

Serial ATA 6.0 Gb/s

Serial ATA

Intel® Rapid Storage

Intel® Z370 RAID 0RAID 1RAID 5RAID 10

SATA

right angle side SATA

SATA

- [AHCI] Serial

ATA RAID BIOS SATA Mode [Intel

RST Premium With Intel Optane System AccelerationRAID]

- RAID

- NCQ BIOS SATA Mode

[ACHI]

ROG MAXIMUS X APEX 1-19

2. 2-pin T_SENSOR1-2

3. USB 3.1 Gen 1 20-1 pin U31G1_12

USB 3.1 Gen 1 USB 3.1

Gen 1 USB 3.1 Gen 1 USB 3.1 Gen 1

5Gbps USB

USB 2.0

USB 3.1 Gen 1

USB 3.1 Gen 1

xHCI EHCI

1-20

4. USB 2.0 10-1 pin USB910; USB1112; USB1314

USB

USB 2.0

USB

USB

USB 2.0 480 MBps

1394

USB

USB 2.0 USB1314

ROG extension

ROG_EXT

ROG MAXIMUS X APEX 1-21

5. High

AMP

; AIO_PUMP 4-pin CPU_FAN; 4-pin CPU_OPT;

4-pin H_AMP; 5-pin EXT_FAN; 4-pin W_PUMP+; 4-pin AIO_PUMP; 4-pin
CHA_

FAN1-3

GND

•

• 4-pin

• AIO

AIO_PUMP

CPU_FAN / CPU_OPT

- Water_Pump+

1-22

CPU_FAN

1A

12W

Q-Fan

A

CPU_OPT

1A

12W

Q-Fan

A

CHA_FAN1

1A

12W

Q-Fan

-

CHA_FAN2

1A

12W

Q-Fan

-

CHA_FAN3

1A

12W

Q-Fan

-

FS_FAN1

1A

12W

FS_FAN2

1A

12W

FS_FAN3

1A

12W

AIO_PUMP

1A

12W

B

W_PUMP+

3A

36W

B

ROG MAXIMUS X APEX 1-23

6. 10-1 pin AAFP

/

HD Audio

/

high

definition

7. ROG - ROG_EXT 18-1 pin ROG_EXT

I/II OC Panel I/II

- I/II OC Panel I/II
- I/II OC Panel I/II
- t w.

asus.com

1-24

8. 24-pin EATXPWR; 8-pin EATX12V_1; 8-pin EATX12V_2; 4-pin EZ_PLUG

ATX

- 2.0 24-pin ATX 12V

PSU 350W

- 8-pin EATX12V

-

- PCIe x16 1000

ROG MAXIMUS X APEX 1-25

9. 10-1 pin F_PANEL; 4-pin SPEAKER

- 2-pin PLED

- 2-pin HDLED

HDD_LED

- 4-pin SPEAKER

- ATX /2-pin PWRBTN

- 2-pin RESET

Reset

1-26

10. Aura RGB 4-pin RGB_HEADER1-4

RGB LED LED Strips

RGB 5050 RGB LED 12V/G/R/B

2 12 2

ATX

OFF

/

- LED
- LED RGB LED RGB LED

- LED

- LED

ROG MAXIMUS X APEX 1-27

11. DIMM.2 DIMM.2_SLOT

DIMM.2 M.2 SSD

- DIMM.2 ATX

DIMM.2

- DIMM.2

DIMM.2

- M.2_1 PCIe 3.0 x4 M Key 2230/2242/2260/2280/22110

- M.2_2 PCIe 3.0 x4 SATA M Key

2230/2242/2260/2280/22110

- IRSTIntel® Rapid Storage Technology

- Intel® Optane™ Intel® Optane™

Intel® Intel® Optane™

BIOS

M.2 SSD

1-28

12. TPM 14-1 pin TPM

T P M

TPM

TPM

13. Water in water out water flow 2-pin W_IN; 2-pin W_
U T; 3-pin W_FLOW

liquid

cooling system

ROG MAXIMUS X APEX 1-29

1.1.10 Probelt

ROG Probelt

Probelt

Probelt

1-30

2.1

2.1.1

LGA1151

CPU

CPU

CPU

ROG MAXIMUS X APEX

2-1

CPU

• CPU LGA1151

• CPU CPU CPU

CPU

• CPU CPU

CPU

- CPU CPU

- CPU CPU

CPU

- CPU CPU

2-2

2.1.2

ROG MAXIMUS X APEX

2-3

AIO

AIO_PUMP

CPU_FAN

CPU_OPT

2-4

2.1.3

1. Q-Shield I/O

2. I/O I/O

ROG MAXIMUS X APEX

2-5

3. 9

2-6

2.1.4

ROG MAXIMUS X APEX

2-7

2.1.5 ATX

8-pin

2.1.6 SATA

2-8

2.1.7 /

Q-Connector

USB 3.1 Gen 1

USB 2.0

USB 3.1 Gen 1

USB 2.0

AAFP

ROG MAXIMUS X APEX

2-9

2.1.8

PCIe x16

PCIe x1

2-10

2.1.9

DIMM.2

1

2

3

3

4

5

5

• 50mm x 50mm 100mm x 100mm

•

ROG MAXIMUS X APEX 2-11

2.2 BIOS

USB BIOS Flashback

USB BIOS Flashback BIOS

BIOS

BIOS

USB

BIOS Flashback BIOS

USB BIOS Flashback

1. USB USB Flashback

USB 2.0 BIOS

2. <https://www.asus.com/support/> BIOS

3. M10A.CAP USB

4.

5. BIOS Flashback Flashback

BIOS Flashback

USB BIOS Flashback

USB BIOS

Flashback

BIOS

BIOS

BIOS

BIOS BIOS

2-12

2.3

2.3.1

CMOS CLR_CMOS

1.

BIOS

2.

PS/2 mouse port

3.

DisplayPort

4.

Intel® USB 3.1 Gen 1 567 8

5.

Aquantia AQC-107 10G *

6.

LANRJ-45*

7.

USB BIOS Flashback

8.

PS/2 keyboard port

9.

HDMI

10.

Intel® USB 3.1 Gen 1 3 4

11.

USB 3.1 Gen 2 Type-A E2

12.

USB 3.1 Gen 2 Type-C™ EC1

13.

S/PDIF

14.

/**

* **

ROG MAXIMUS X APEX 2-13

- USB 3.1 Gen 1

- USB 3.1 Gen 1 USB 3.1 Gen 1

- Intel USB 2.0 USB 3.1 Gen

1 USB xHCI USB

*

Activity

Speed

10 Mbps

ACT/LINK SPEED

100 Mbps

1 Gbps

S5

BIOS LAN1

* Aquantia AQC-108 5G

Activity

Speed

ACT/LINK SPEED

10 Mbps

5 Gbps

2.5 Gbps / 1

Gbps / 100Mbps

**

/

—

—

/

/

—

2-14

2.3.2 /

/

2

ROG MAXIMUS X APEX 2-15

4

6

8

2-16

2.4

1.

2.

3.

4. /

5.

a.

b.

SCSI

c.

6.

ATX

30

BIOS

VGA

VGA

7. BIOS

2.5

BIOS

BIOS

ROG MAXIMUS X APEX 2-17

2-18

3.1 BIOS

UEFI BIOS UEFI

BIOS

UEFI BIOS

BIOS

UEFI BIOS

BIOS Basic Input and Output System

CMOS BIOS

BIOS

- BIOS

- BIOS

BIOS

BIOS

- BIOS M10A.CAP

- BIOS

BIOS

BIOS

ROG MAXIMUS X APEX

3-1

3.2 BIOS

BIOS

BIOS

BIOS POSTPower-

On Self Test

POST

POST BIOS

POST BIOS

- <Ctrl> + <Alt> + <Delete>
- <RESET>
-

BIOS

<Delete> BIOS

- BIOS
- BIOS
- BIOS

B I O S

<F5> 3.10 BIOS Load

Optimized Defaults

- BIOS CMOS

2.3.1

- BIOS

<http://tw.asus.com> BIOS

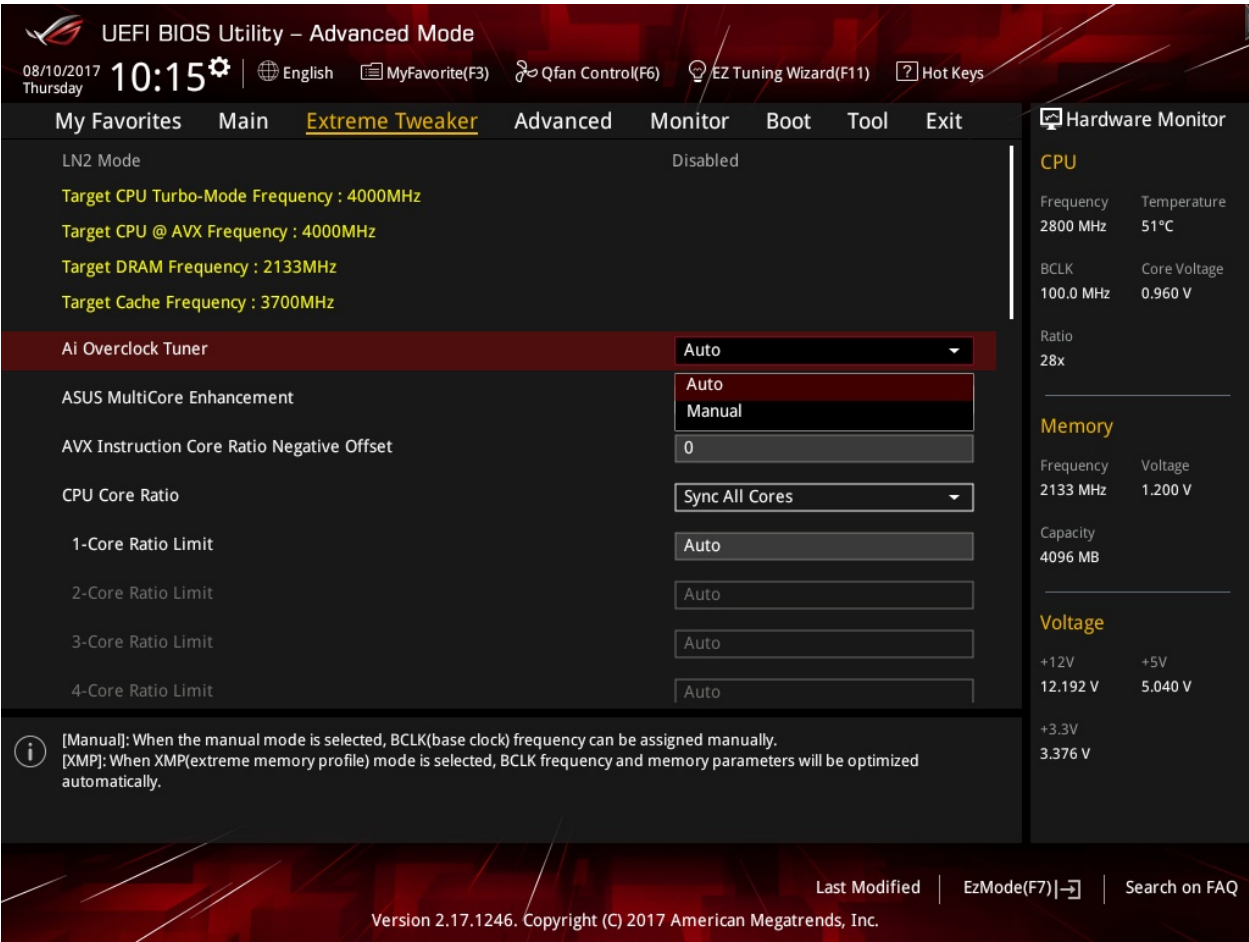
BIOS

BIOS EZ Mode Advanced Mode

EZ Mode/Advanced Mode <F7>

3-2

BIOS



3.2.1 Advanced Mode

Advanced Mode BIOS Advanced Mode

BIOS

Boot

menu Setup Mode

Q-Fan controlF6

F3

EZ Tuning F11

EZ Mode

/

ROG MAXIMUS X APEX

3-3

BIOS

My Favorites

Main

Ai Tweaker

Advanced

Monitor

Boot

Tool

Exit

BIOS

Main

Ai

TweakerAdvancedMonitorBootTool

Exit

<Enter>

BIOS

BIOS

F3

BIOS

BIOS

3.3 My Favorites

Q-Fan ControlF6

3.2.3 QFan Control

EZ Tuning F11

SATA AHCI RAID

3.2.4 EZ Tuning

3-4

BIOS



QR Code

BIOS

/

PageUp/PageDown

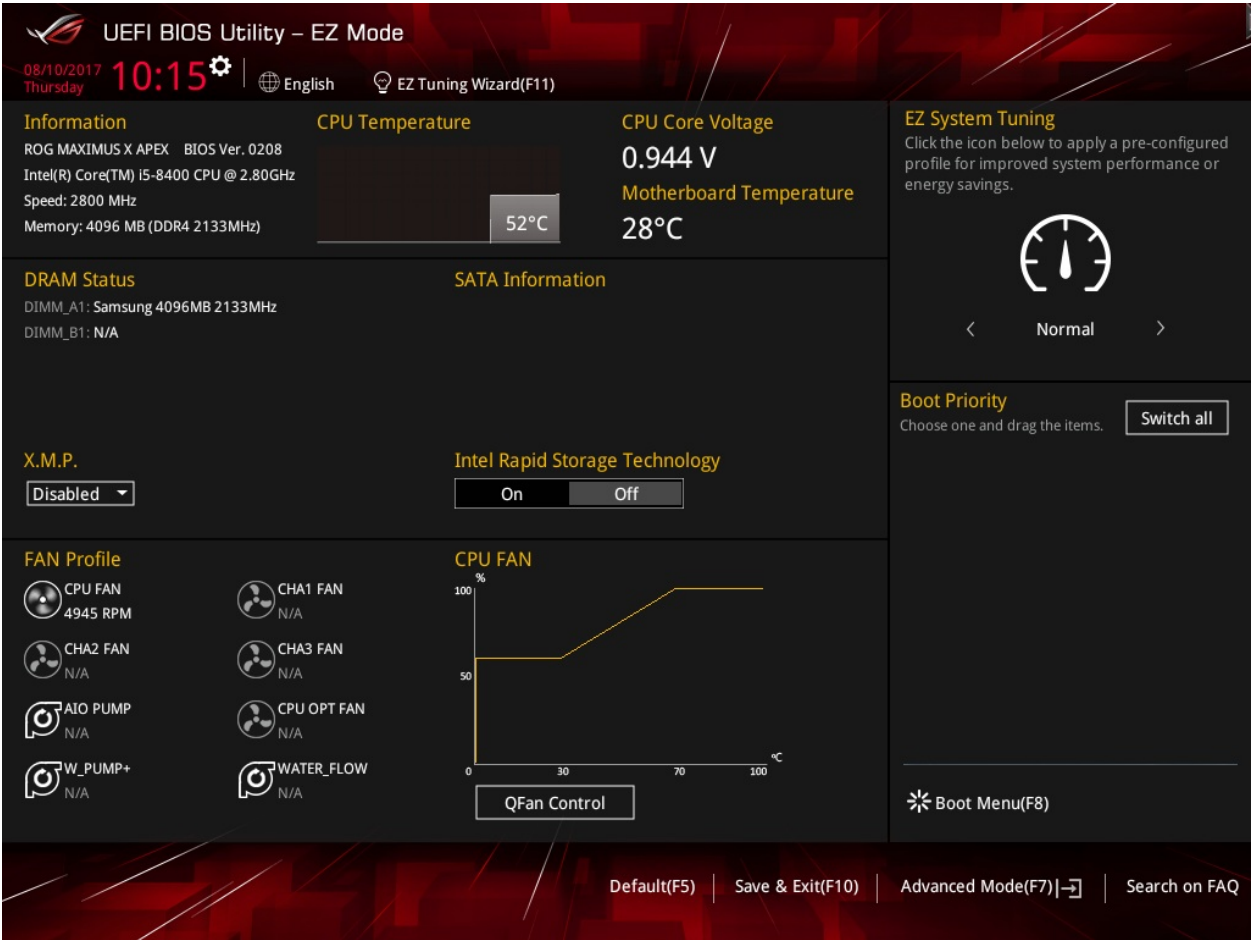
<F12> BIOS

<Enter>

BIOS

ROG MAXIMUS X APEX

3-5



3.2.2 EZ Mode

BIOS

EZ Mode

EZ Mode

Advanced

Mode Advanced Mode <F7>

Advanced Mode EZ Mode EZ ModeF7

<F7>

CPU/CPU

< > EZ System

CPU//

RAID

SATA

BIOS

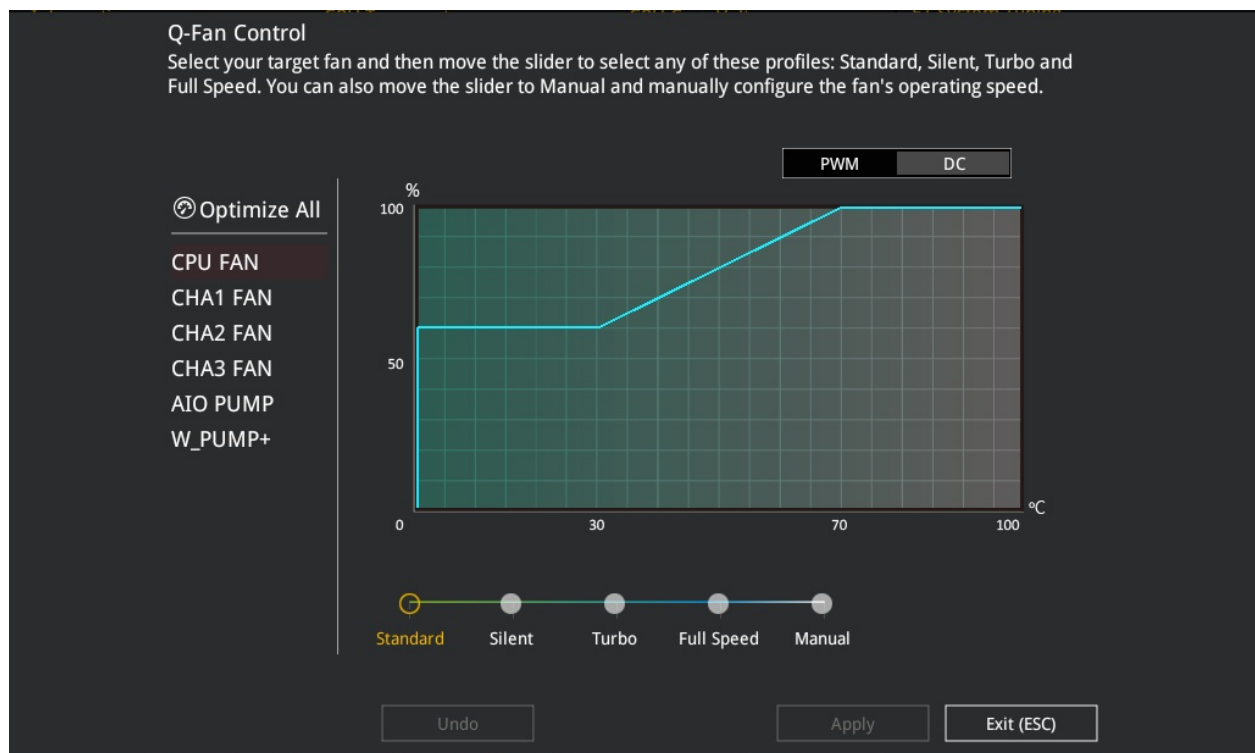
SATA RAID

Intel Rapid Storage

Advanced

3-6

BIOS



3.2.3 QFan Control

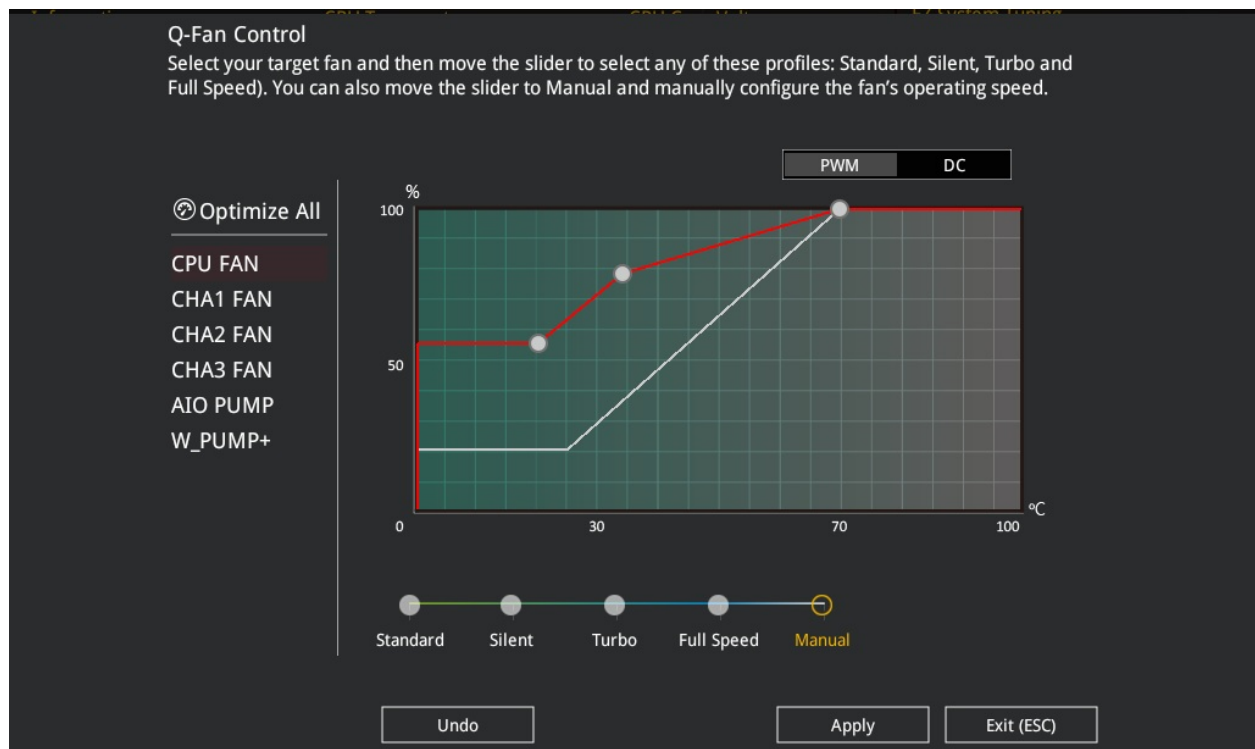
QFan Control

PWM

DC

ROG MAXIMUS X APEX

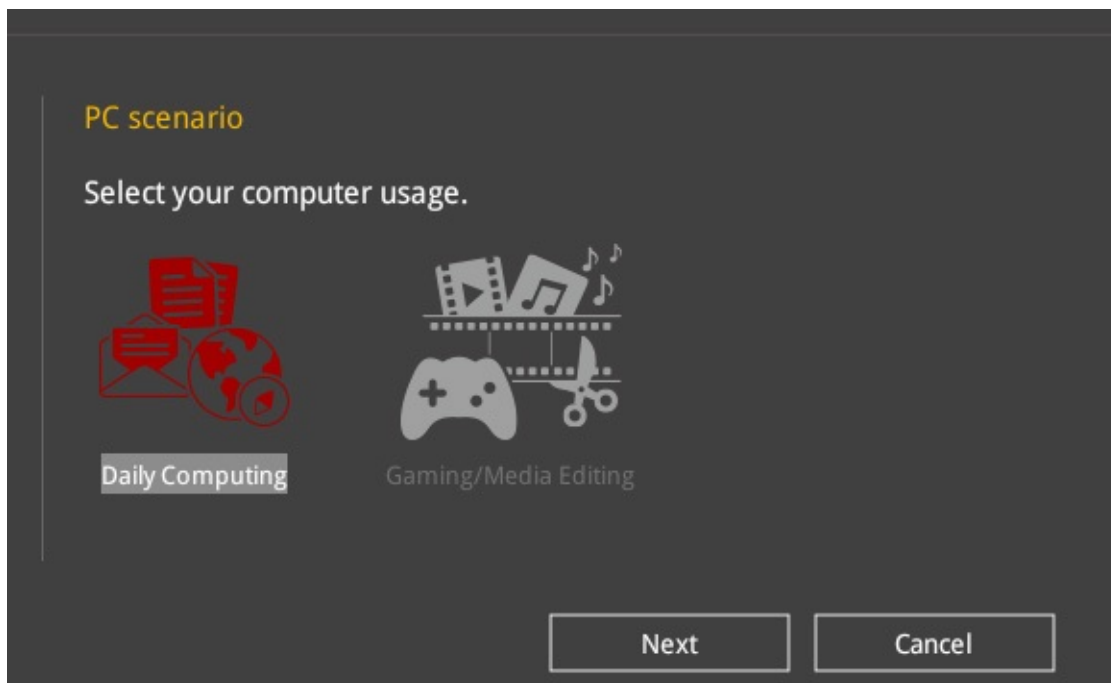
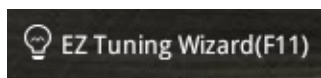
3-7



Manual

- 1.
 - 2.
 3. Apply ExitESC
- 3-8

BIOS





3.2.4 EZ Tuning

EZ Tuning

RAID

RAID

1. <F11> BIOS

EZ

Tuning

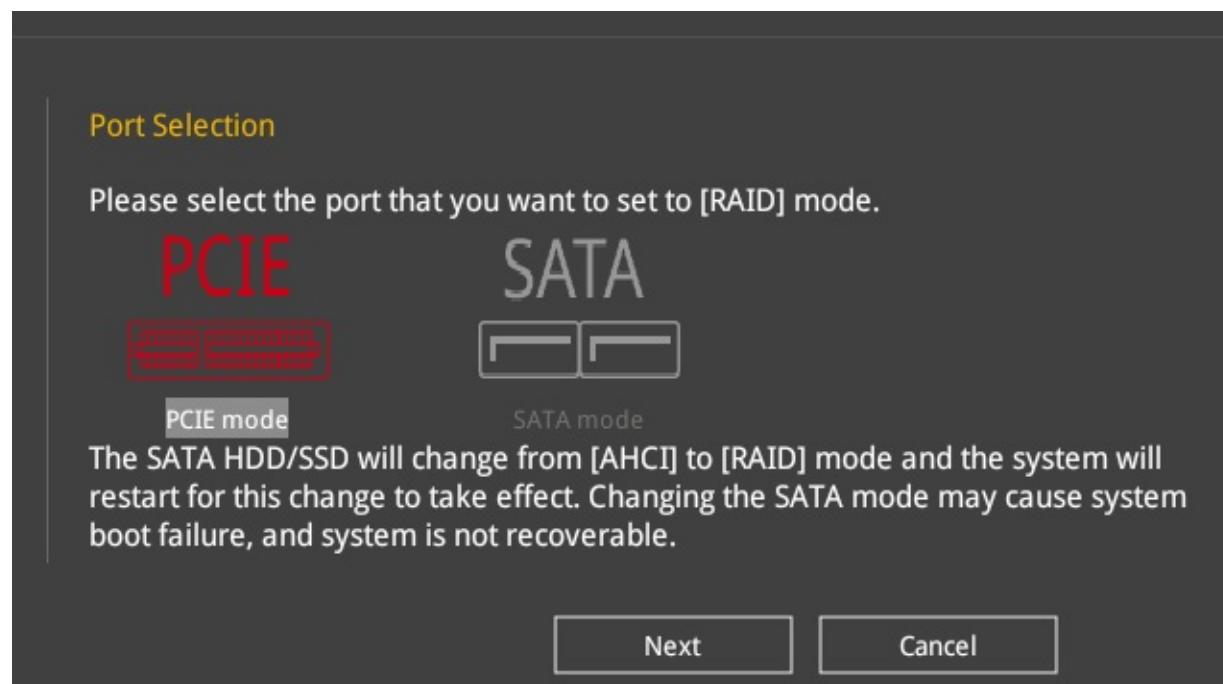
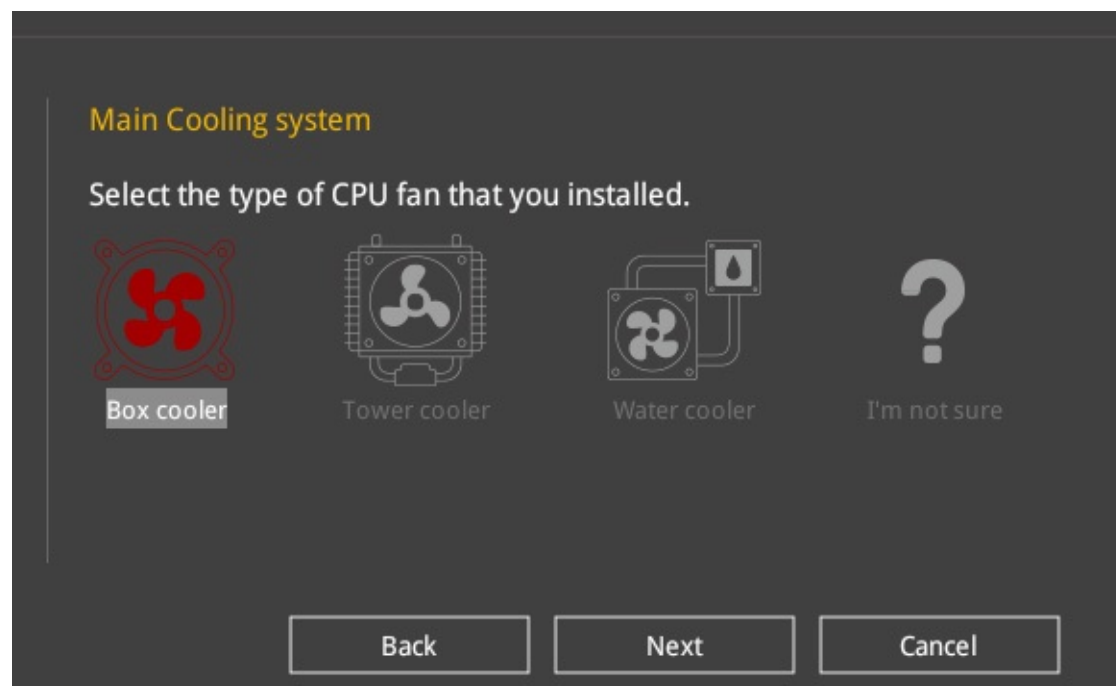
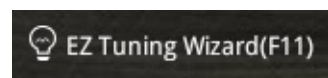
2. OC Next

3. Daily Computing Gaming/Media Editing

Next

ROG MAXIMUS X APEX

3-9



4 Box cooler Tower cooler Water cooler I'm not
sure Next

5 Next Yes

OC Tunning

RAID

RAID

1. <F11> BIOS

E Z

Tuning Next

2. RAID Next

- RAID
- Intel® SATA

3. RAID PCIE SATA Next

3-10 BIOS

Storage Function Selection

Select the RAID type for your selected storage function



Easy Backup (RAID1)



Easy Backup (RAID10)

Back

Next

Cancel

Storage Function Selection

Select the RAID type for your selected storage function



Super Speed (RAID 0)



Super Speed (RAID 5)

Back

Next

Cancel



4. RAID Easy Backup Super Speed

Next

a.

Easy Backup Next Easy Backup

RAID1 Easy Backup RAID10

Easy Backup RAID 10

b.

Super Speed Next Super Speed

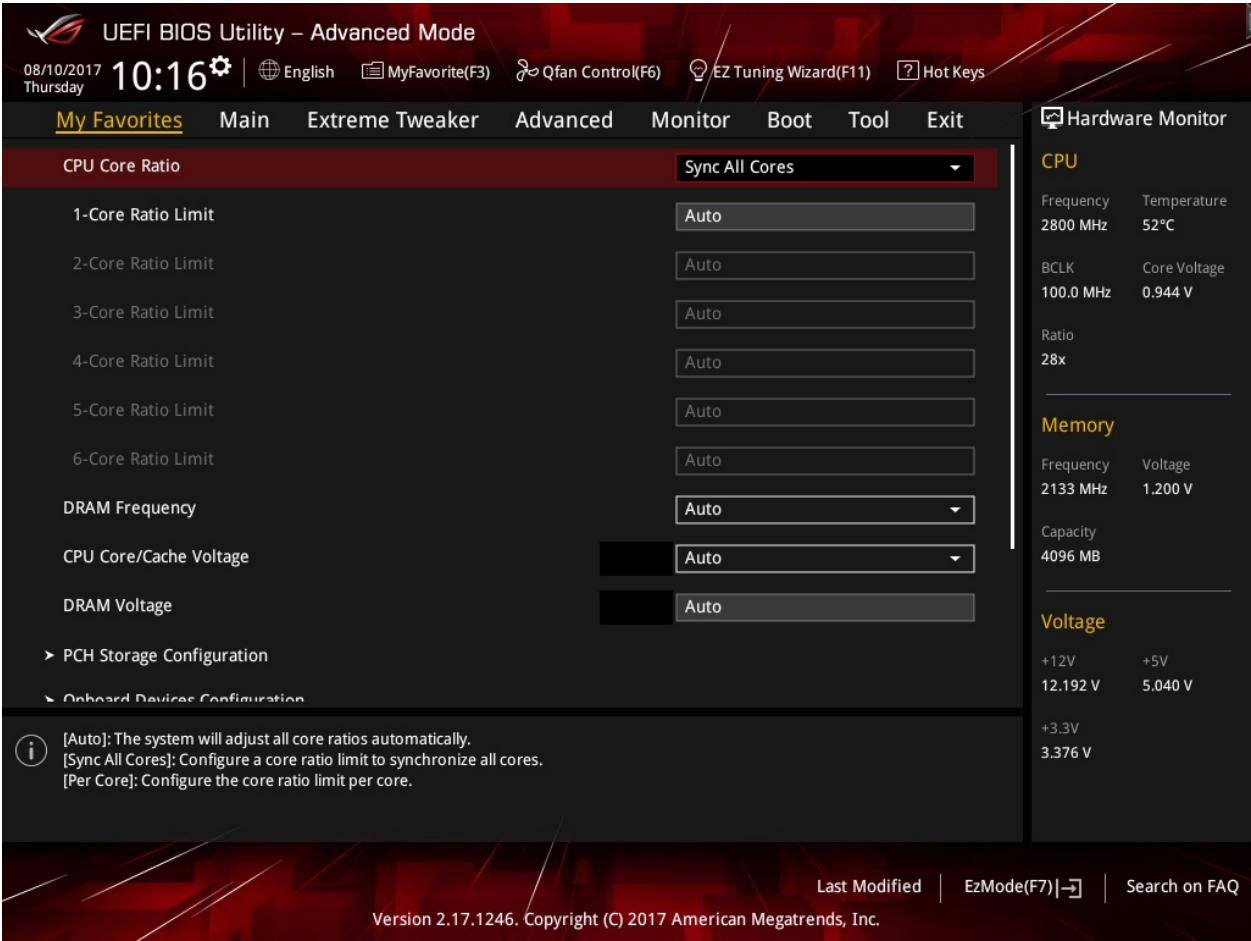
RAID0 Super Speed RAID5

5. RAID Next Yes

RAID

6. RAID Yes RAID OK

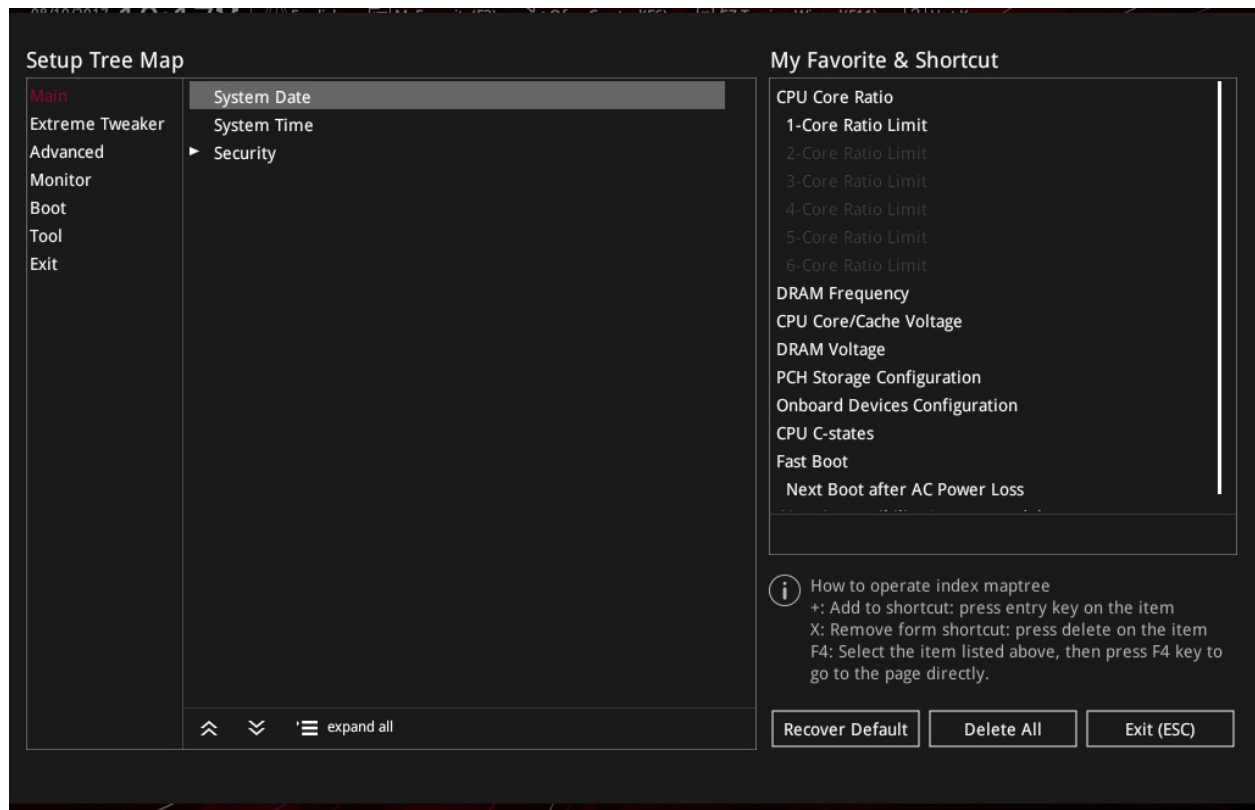
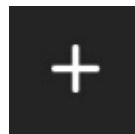
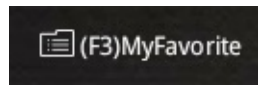
ROG MAXIMUS X APEX 3-11



3.3 My Favorites

BIOS

3-12 BIOS



1. <F3> BIOS

2. BIOS

3.

<Enter>

-
-
- SPD

4. ExitESC <Esc>

5. BIOS

ROG MAXIMUS X APEX 3-13

3.4 Main Menu

BIOS Advanced

Mode

Security

- BIOS CMOS RTC

1.1.6

- Administrator User Password [Not Installed]

[Installed]

3.5 Ai Tweaker Ai Tweaker menu

Ai Overclock Tuner

CPU CPU

[Auto]

[Manual]

BCLK

[X.M.P]

eXtreme Memory ProfileX.M.P.

eXtreme Memory ProfileX.M.P.

[X.M.P.]

Ai Overclock Tuner [Manual]

BCLK Frequency

BCLK <+> <->

40.0MHz 1000.0MHz

3-14 BIOS

ASUS MultiCore Enhancement

[Auto]

[Disabled]

CPU Core Ratio

CPU [Auto]

[Sync All Cores] [Per

Core]

DRAM Frequency

BCLK Frequency

[Auto] [DDR4-800MHz] - [DDR4-4000MHz]

TPU

TPU

CPU

[Keep Current Settings]

[TPU I]

[TPU II]

TPU [TPU_II]

Internal CPU Power Management

CPU

Intel(R)SpeedStep(tm)

[Auto] [Disabled] [Enabled]

Turbo Mode

[Enabled] [Disabled]

ROG MAXIMUS X APEX 3-15

3.6 Advanced menu

3.6.1 CPU Configuration

CPU Power Management Configuration

Intel(R) SpeedStep(tm)

[Auto] [Enabled] [Disabled]

Turbo Mode

[Enabled] [Disabled]

CPU C-States

C P U S t a t e s [A u t o] [D i s a b l e d]

[Enabled]

3.6.2 Platform Misc Configuration

3.6.3 System Agent Configuration

PEG Port Multi-Monitor

3.6.4 PCH PCH Configuration

PCI Express

PCI Express Configuration

PCI Express

PCIe Speed

PCIe [Auto]

[Gen1] [Gen2]

[Gen3]

3-16 BIOS

3.6.5 PCH PCH Storage Configuration

BIOS BIOS

SATA

SATA Empty

SATA Controller(s)

SATA [Disabled] [Enabled]

SATA Mode Selection

SATA

[AHCI] Serial ATA Advanced Host Controller Interface(AHCI

[AHCI]AHCI

Serial ATA

[[Intel RST Premium With Intel Optane System AccelerationRAID]

Serial ATA

RAID

[Intel

RST Premium With Intel Optane System AccelerationRAID]

S.M.A.R.T Status Check

S.M.A.R.T.

POST[On] [Off]

SATA6G_1(Gray) - SATA6G_4(Gray)

SATA6G_1(Gray) - SATA6G_4(Gray)

SATA [Disabled] [Enabled]

Hot Plug

SATA Mode Selection [ACHI]

SATA Hot Plug[Disabled] [Enabled]

3.6.6 PCH-FW PCH-FW Configuration

TPM

ROG MAXIMUS X APEX 3-17

3.6.7 ROG ROG Effects

RGB LED Q-Code LED

Onboard LED

LED [Disabled] [Enabled]

Q-Code LED Function

[Auto]

Q-Code LED POST

[POST Code Only] Q-Code LED POST

3.6.8 OnBoard Devices Configuration

PCle

HD Audio Controller

[Enabled]

[Disabled]

M.2_2 Configuration: [Auto][SATA mode][PCIE mode]

[Auto]

M.2

[M.2 Mode]

M.2 SATA

[PCIE Mode]

M.2 PCIE

USB Type C Power Switch

[Auto]

USB Type C

[Enabled]

USB Type C

RGB LED lighting

RGB LED

[On] [Off]

RGB LED

[On] [Off]

5G LAN Card

5G [Enabled] [Disabled]

Intel LAN Controller

Intel [Enabled] [Disabled]

3-18 BIOS

3.6.9 APM Configuration

ErP Ready

S4+S5 S5

Energy

Related ProductWOLUSB

LED

USB [Disabled]

[EnabledS4+S5] [Enabled

S5]

3.6.10 Network Stack Configuration

Ipv4/Ipv6 PXE

3.6.11 HDD/SSD SMART Information

SMART information

NVM Express SMART information

3.6.12 USB Configuration

USB

USB Devices

None

USB Single Port Control

USB

USB 1.1.2

ROG MAXIMUS X APEX 3-19

3.7 Monitor menu

/

Qfan Configuration

Qfan Tuning

AIO PUMP/W_PUMP+ Control

[Disabled]

[Auto]

[DC Mode]

DC 3-pin

[PWM Mode]

PWM 4-pin

3.8 Boot menu

Fast Boot

[Disabled]

[Enabled]

Fast Boot [Enabled]

Next Boot after AC Power Loss

[Normal Boot]

[Fast Boot]

Boot Configuration

Setup Mode

[Advanced Mode] Advanced Mode BIOS

[EZ Mode]

EZ Mode BIOS

3-20 BIOS

CSM

CSM

VGA

CSM UEFI RAID

RAID

Launch CSM

[Auto]

[Enabled]

CSM UEFI

Windows UEFI

[Disabled]

Launch CSM [Enabled]

Boot Devices Control

[U E F I

a n d L e g a c y

OPROM] [Legacy OPROM only] [UEFI only]

Boot from Network Devices

[L e g a c y

O n l y] [U E F I

driver first] [Ignore]

Boot from Storage Devices

[Legacy Only] [UEFI

driver first] [Ignore]

Boot from PCI-E/PCI Expansion Devices

PCI-E/PCI [Legacy

Only] [UEFI driver first]

Secure Boot

Windows®

POST

ROG MAXIMUS X APEX 3-21

Boot Option Priorities

- Windows OS POST

<F8>Windows 8

- ASUS Logo <F8>

Boot Override

3.9 Tools menu

<Enter>

Setup Animator

[Disabled] [Enabled]

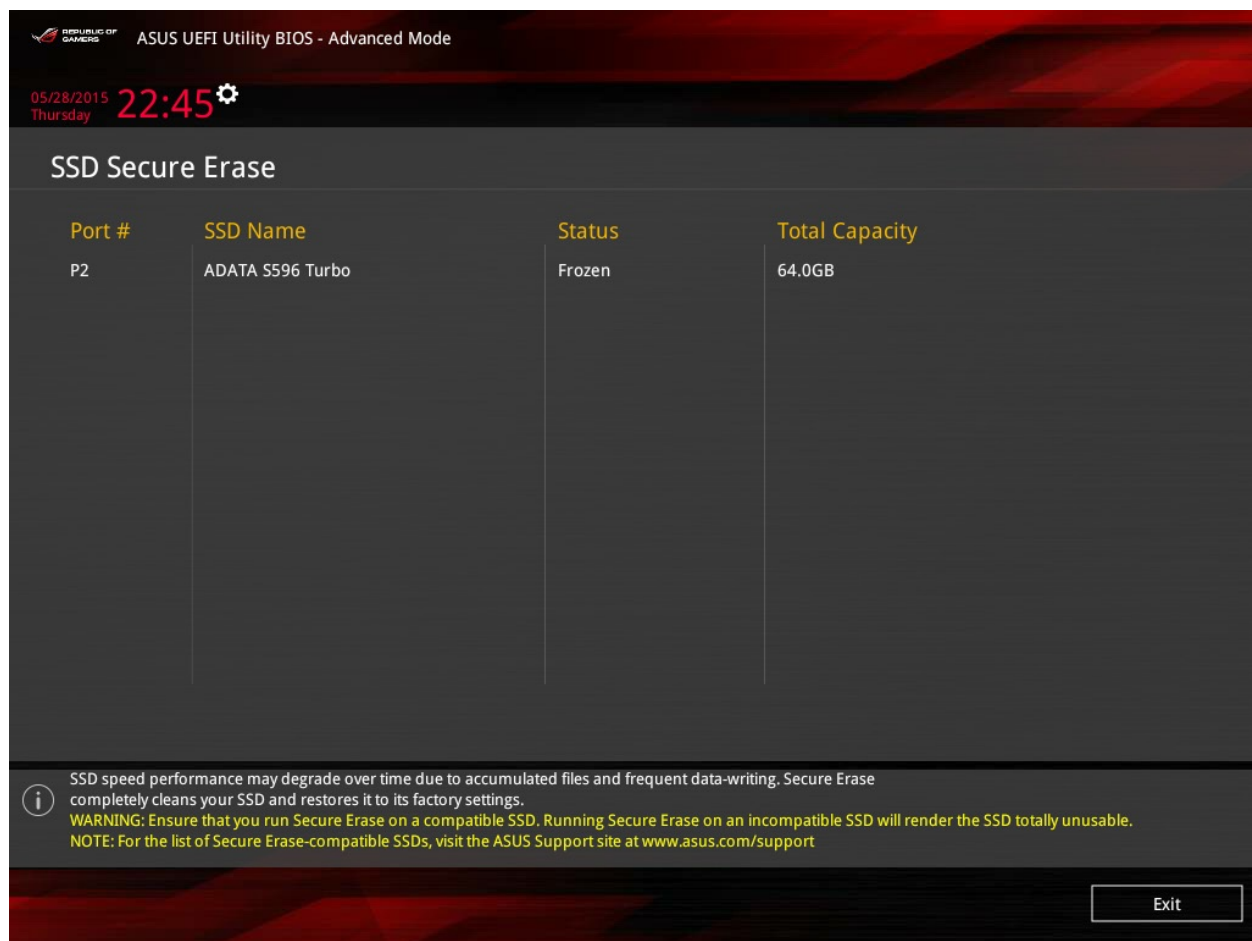
3.9.1 ASUS EZ Flash 3

EZ Flash 3 <Enter>

[Yes] [No] <Enter>

3.11.2 EZ Flash 3

3-22 BIOS



3.9.2

SSD

ACHI

> SATA >

AHCI

> >

•

- Intel® SATA

1.1.2

SSD

:

- Frozen. Frozen

SSD

- Locked. SSD

Third-party software

ROG MAXIMUS X APEX 3-23

3.9.3 ASUS O.C. Profile

BIOS

Load from Profile

BIOS Flash BIOS

BIOS <Enter> Yes

- BIOS

- / BIOS

BIOS

Profile Name

Save to Profile

BIOS BIOS Flash 1

8 <Enter> Yes

Load/Save Profile from/to USB Drive

USB USB

3.9.4 BIOS FlashBack

BIOS

3.9.5 ROG OC Panel H-Key Configure

ROG OC Panel H-Key UEFI BIOS CPU Core voltageCPU

input voltageBCLK Frequency CPU ratio OC

Panel OS BIOS

OC Panel

Load Default

CPU Core VoltageCPU Input VoltageBCLK Frequency CPU

Ratio

Save Above Settings

CPU Core VoltageCPU Input VoltageBCLK

Frequency CPU Ratio

Load from profile

CPU Core VoltageCPU Input VoltageBCLK Frequency

CPU Ratio

3-24 BIOS

3.9.6 SPD ASUS SPD Information

3.9.7 Graphics Card Information

GPU Post

Bus Interface

bus interface[PCIEX16/x8_1]

ROG MAXIMUS X APEX 3-25

3.10 BIOS Exit menu

BIOS

BIOS

BIOS Exit EZ Mode

Load Optimized Defaults

BIOS

<F5> OK

Save Changes & Reset

BIOS

<F10>

OK BIOS

Discard Changes & Exit

<Esc>

Yes

BIOS

Launch EFI Shell from USB devices

EFI Shellshellx64.efi

3-26 BIOS

3.11 BIOS

BIOS

BIOS

BIOS

BIOS

BIOS

BIOS

<http://tw.asus.com>

BIOS

1. EZ Update Windows BIOS

2. ASUS EZ Flash 3 USB BIOS

3. ASUS CrashFree BIOS 3 BIOS

USB

BIOS

3.11.1 EZ Update

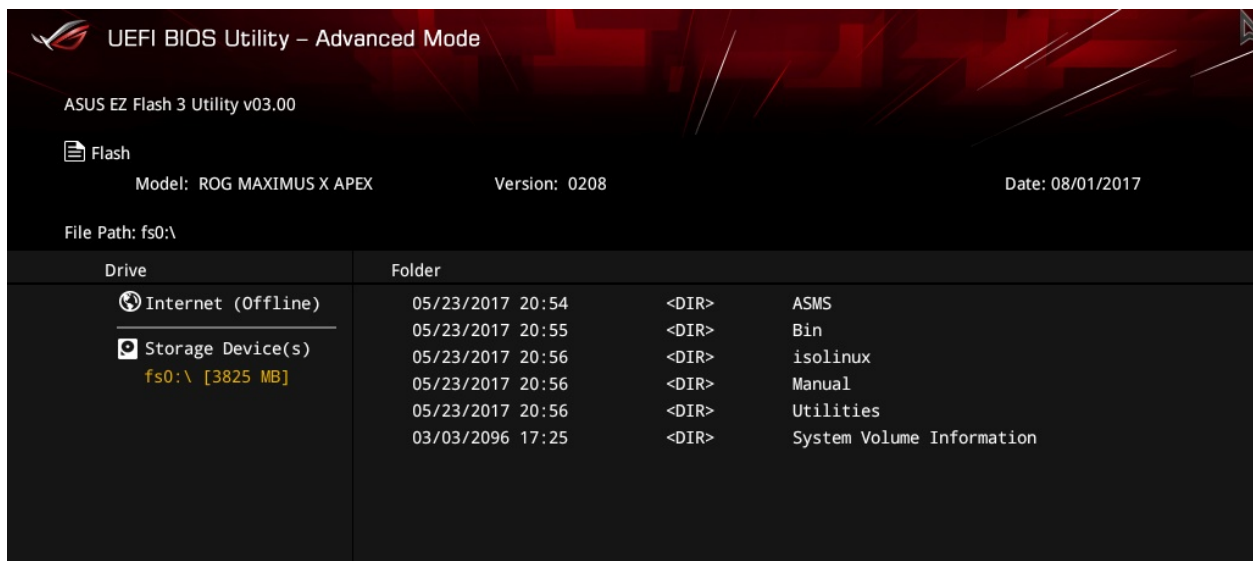
EZ Update Windows BIOS

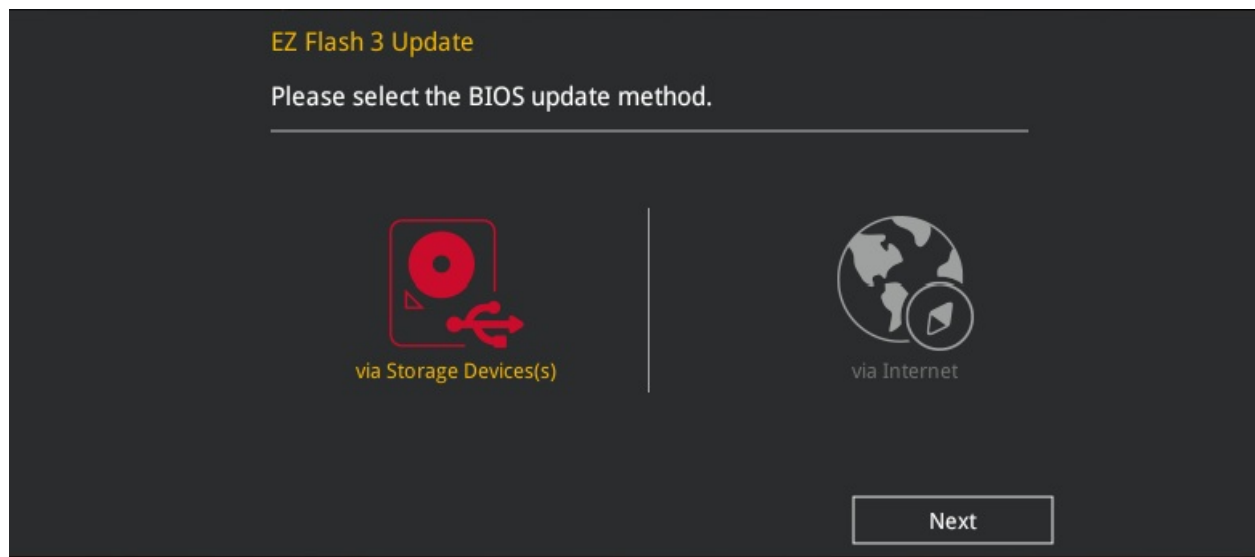
- EZ Update

ISP

•

ROG MAXIMUS X APEX 3-27





3.11.2 EZ Flash 3

EZ Flash 3 BIOS

DOS

<http://tw.asus.com> BIOS

USB BIOS

1. BIOS Advanced Mode Tool > ASUS EZ Flash 3 Utility

<Enter>

2. BIOS USB USB

3. via Storage Device(s)

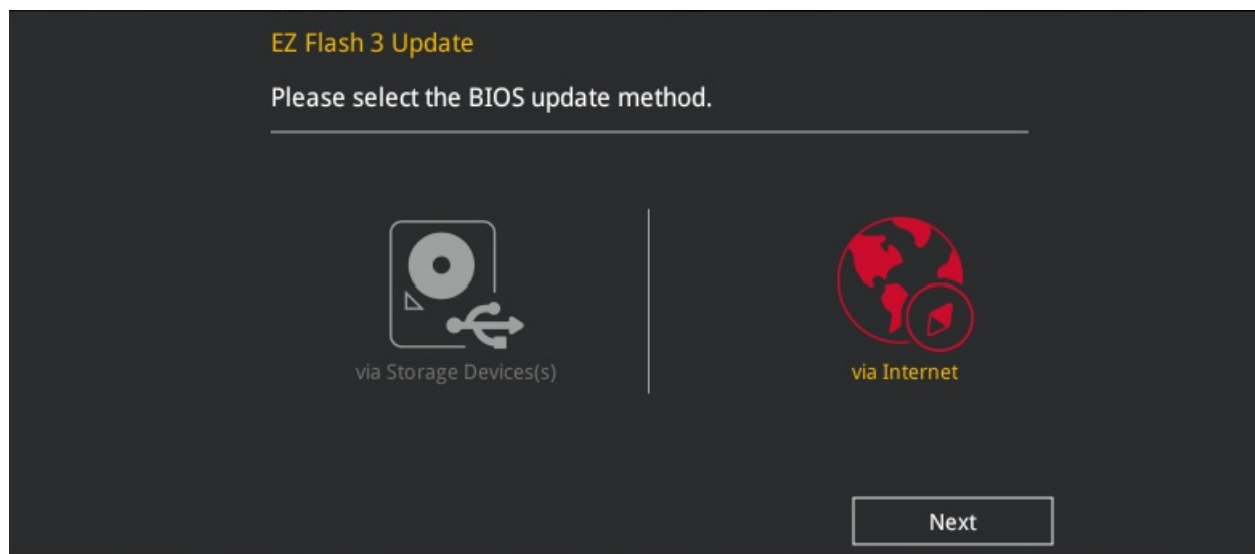
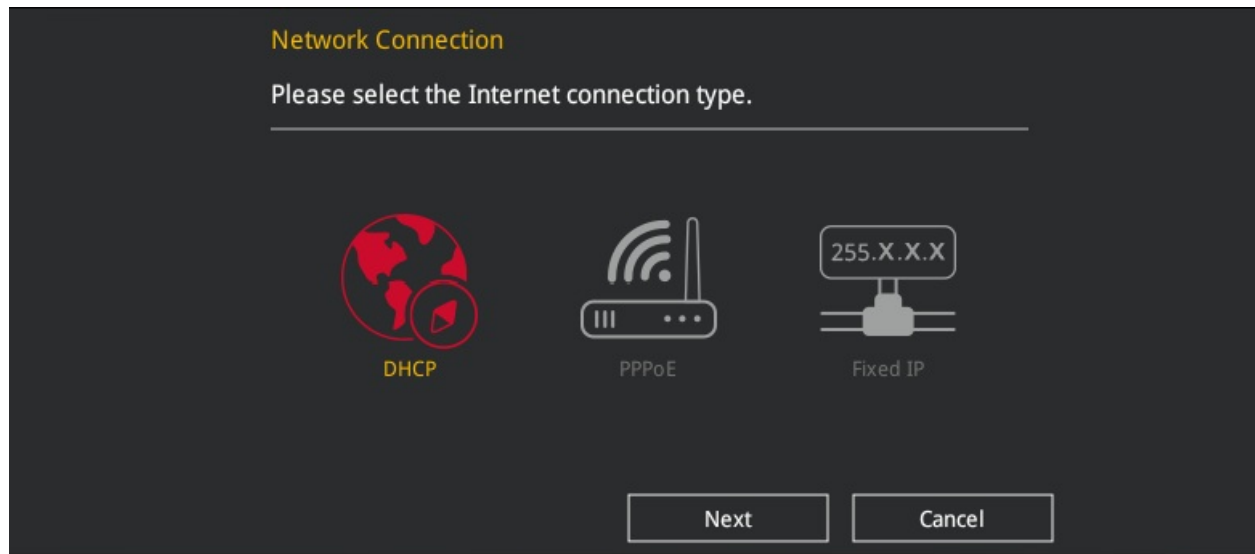
4. / BIOS USB

<Enter>

5. / USB BIOS <Enter>

BIOS BIOS

3-28 BIOS



- FAT 32/16 USB
- BIOS

3.10 BIOS

Load Optimized Defaults

BIOS

1. BIOS Advanced Mode Tool > ASUS EZ Flash 3 Utility

<Enter>

2. via Internet

3. <Enter>

4. BIOS

5. BIOS

3.10 BIOS

Load Optimized Defaults

ROG MAXIMUS X APEX 3-29

3.11.3 CrashFree BIOS 3

CrashFree BIOS 3 BIOS

BIOS USB BIOS

BIOS

BIOS

BIOS

[http://support.](http://support.asus.com)

asus.com

BIOS

BIOS

1.

2.

BIOS

USB USB

3.

BIOS

BIOS

BIOS

ASUS EZ Flash 3

4. BIOS BIOS

<F5> BIOS

BIOS

3-30 BIOS

4.1 RAID

SATA RAID

• Intel® Rapid Storage Technology RAID 0RAID 1RAID 10 RAID
5

RAID

DVD

RAID

4.2

RAID

4.1.1 RAID

RAID 0 Data striping

/

RAID 0

RAID 0

RAID 1 Data

Mirroring

Mirrored

Pair/

RAID 1 fault

tolerance

RAID 5

RAID 5

RAID

5

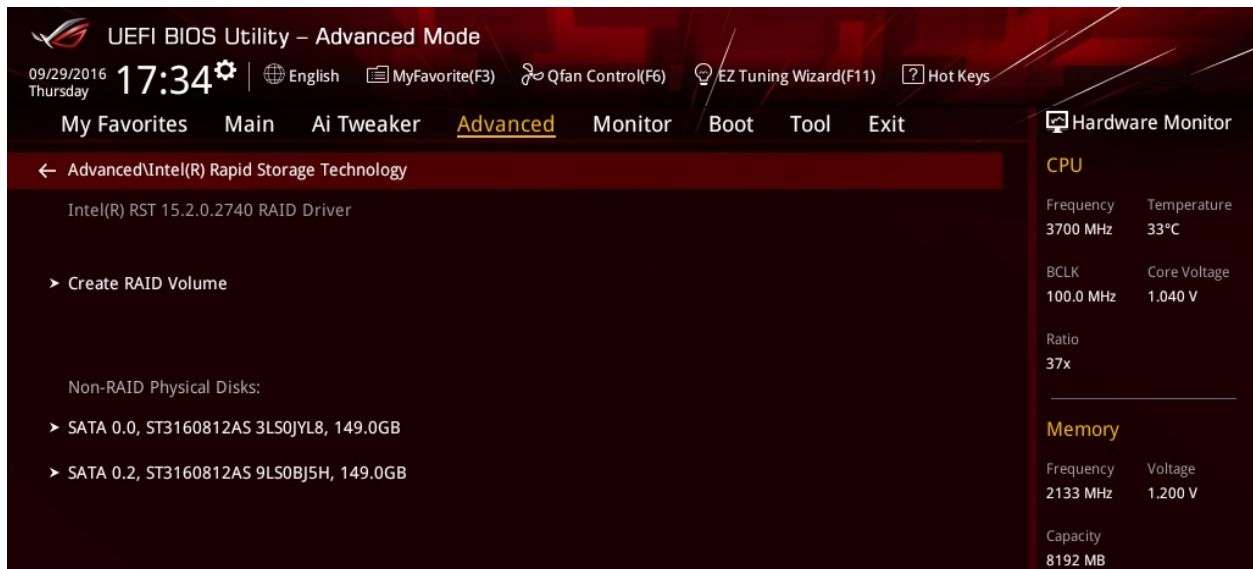
RAID 10 Data striping+Data Mirroring RAID 0

RAID 1 RAID 0 RAID

1

ROG MAXIMUS X APEX

4-1



4.1.2 Serial ATASATA

Serial ATA

SATA RAID

1. SATA
2. SATA
3. SATA

4.1.3 UEFI BIOS Intel® Rapid Storage Technology

UEFI BIOS Intel® Rapid Storage Technology

1. Power-On Self TestPOST

<Delete> BIOS

2. Advanced > PCH Storage Configuration

<Enter>

3. SATA Controller Mode [Intel RST Premium With Intel Optane Sy AccelerationRAID]

4. Boot CSM> Launch CSM

[Disabled]

5. BIOS BIOS

6. Advanced > Intel(RRapid Storage Technology

<Enter> Intel® Rapid Storage Technology

BIOS

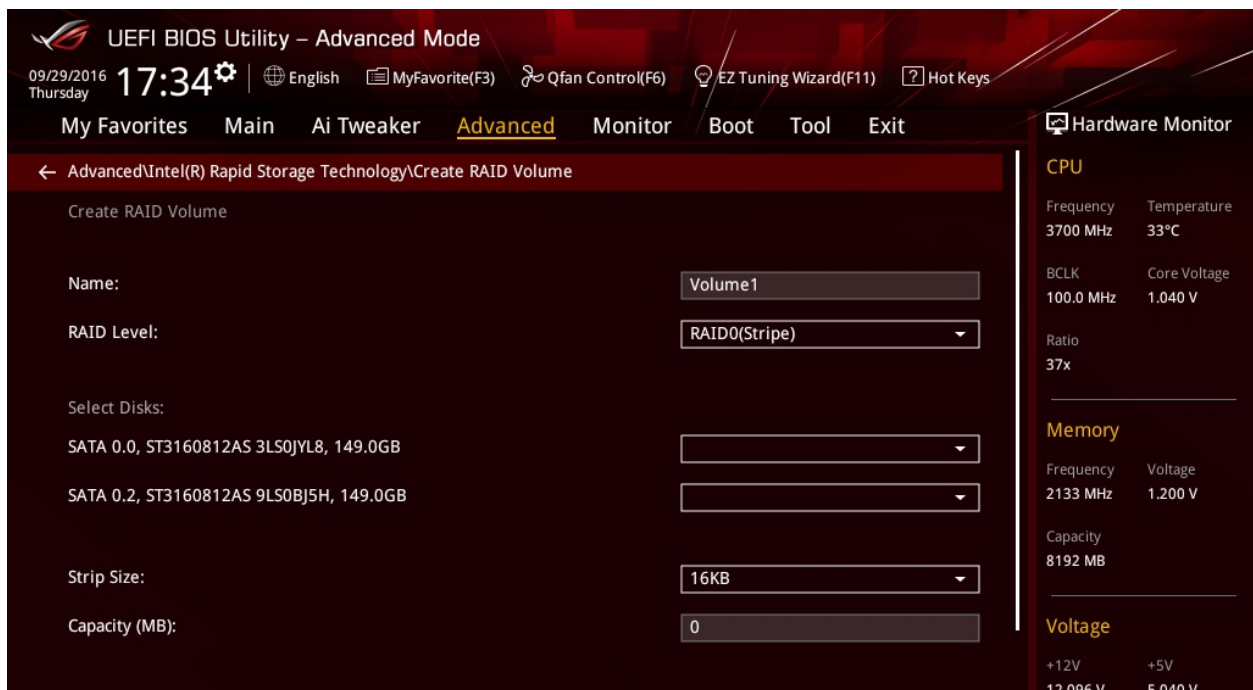
SATA

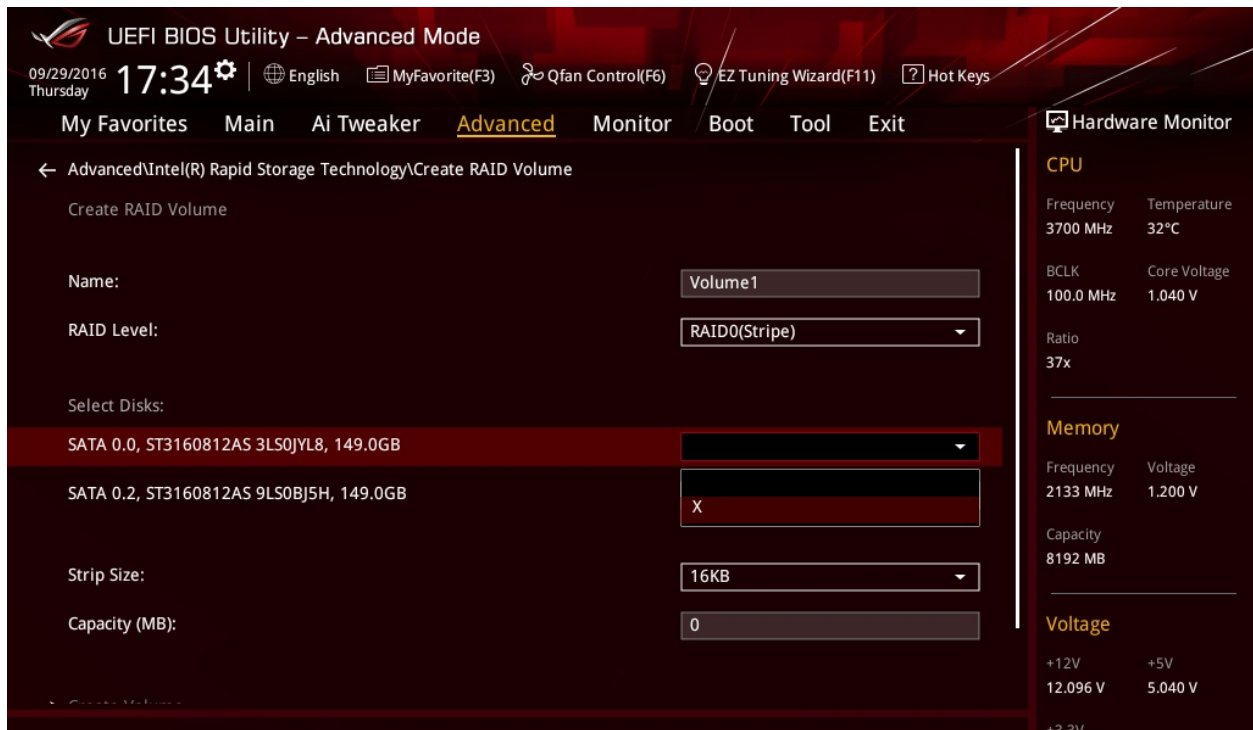
RAID

SATA

RAID

4-2 RAID





RAID

RAID

1. Intel Rapid Storage Technology Create RAID Volume

<Enter>

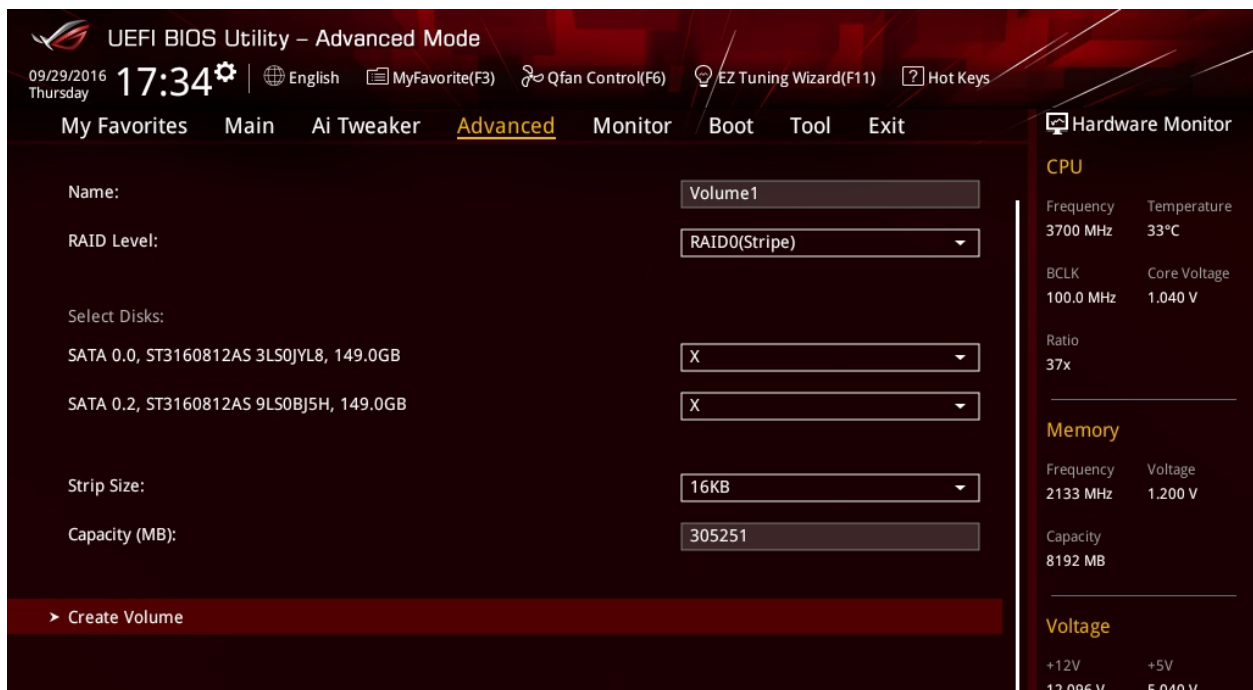
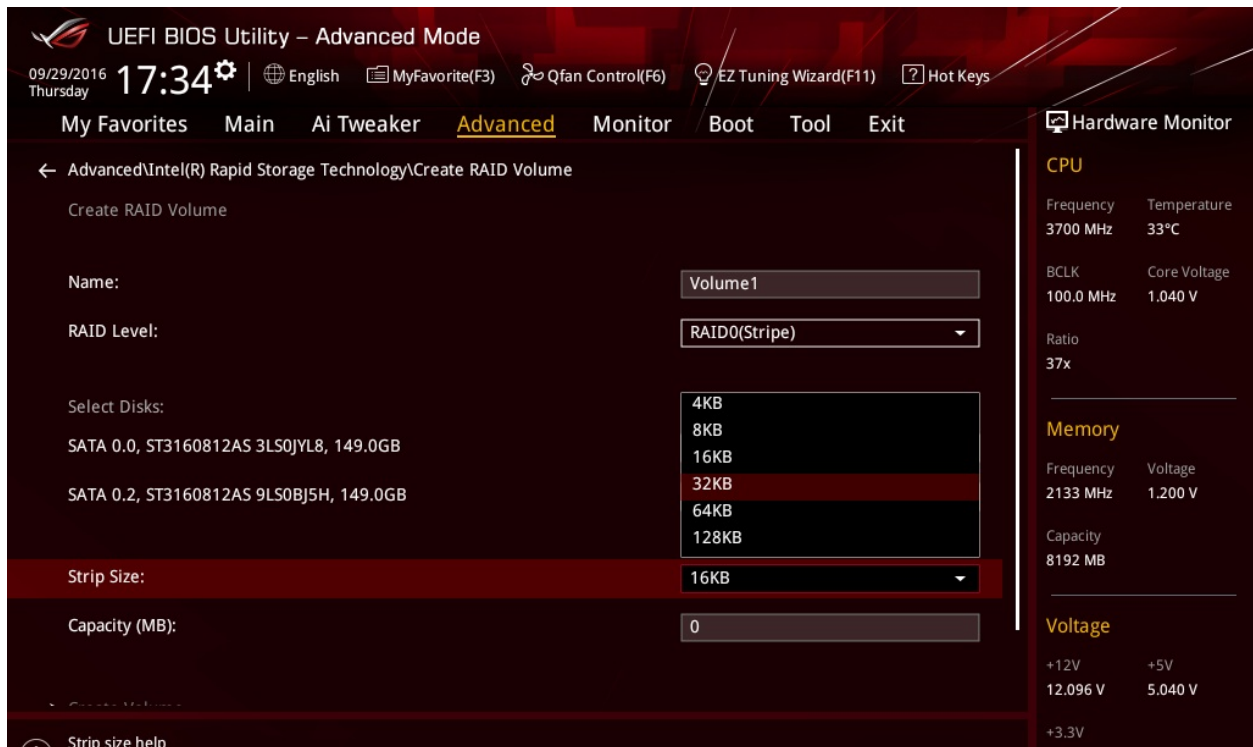
2. RAID <Enter>

3. RAID <Enter>

4. Disk <Enter> X

ROG MAXIMUS X APEX

4-3



5. RAID RAID 0RAID 10RAID 5

<Enter> 4KB 128KB

RAID 0: 128KB

RAID 10: 64KB

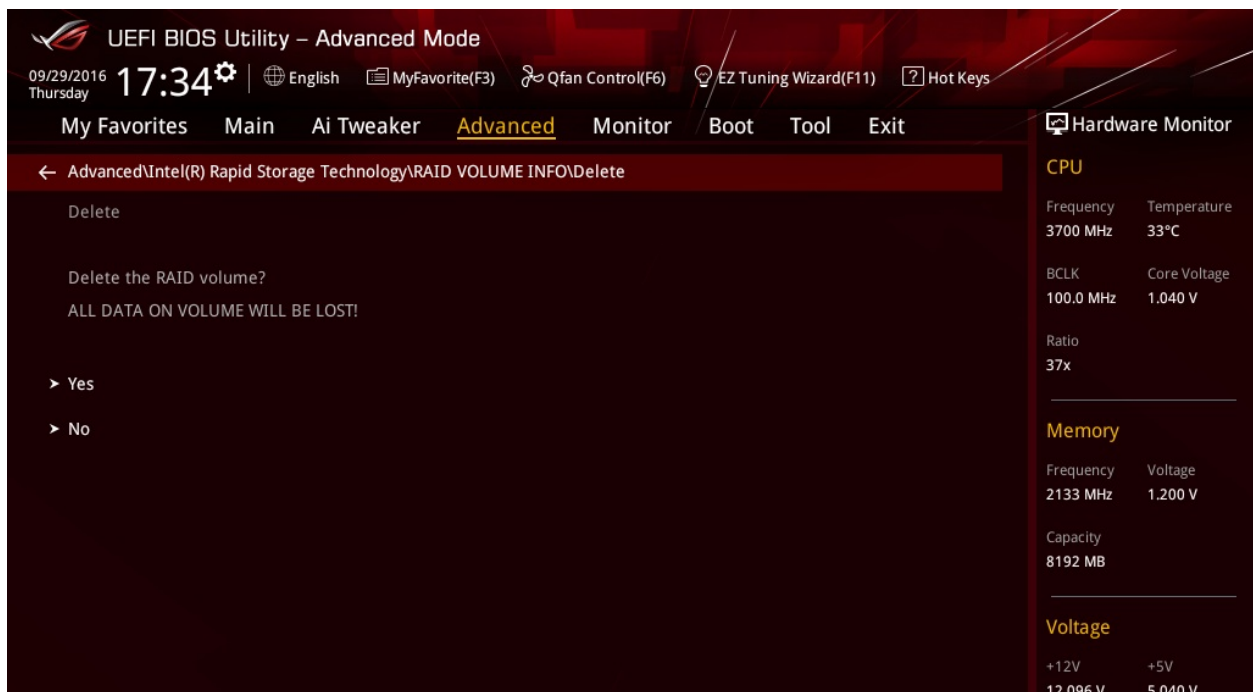
RAID 5: 64KB

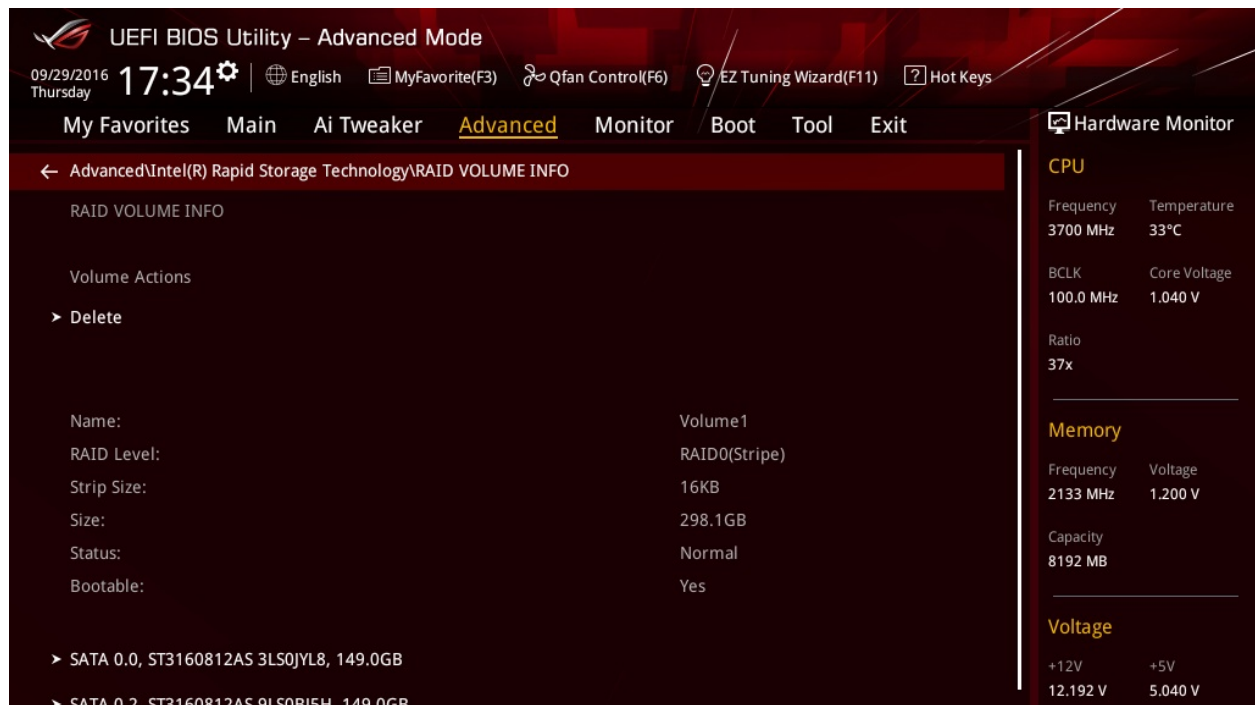
6. <Enter>

7. Create Volume <Enter>

Intel Rapid Storage Technology

4-4 RAID





RAID

RAID

RAID

1. Intel Rapid Storage Technology RAID

<Enter>

2. Delete <Enter> Yes RAID

Intel Rapid Storage Technology No

ROG MAXIMUS X APEX

4-5

4.1.4 Intel® Rapid Storage Technology Option ROM

Intel® Rapid Storage Technology Option ROM

1.

2. POST

<Ctrl> + <I>

RAID Volumes:

None defined.

Physical Devices:

Port Device Model Serial #

Size

Type/Status(Vol ID)

0 ST3160812AS 9LS0HJA4

149.0GB Non-RAID Disk

1 ST3160812AS 9LS0F4HL

149.0GB Non-RAID Disk

2 ST3160812AS 3LS0JYL8

149.0GB Non-RAID Disk

3 ST3160812AS 9LS0BJ5H

149.0GB Non-RAID Disk

navigation

RAID BIOS

RAID

4-6 RAID

RAID

RAID

1. 1. Create RAID Volume <Enter>

Name: Volume 0

RAID Level: aaaaaaaaaaaaaa

Disks: dssdsdsds

Strip Size:aaaaaaaaaaaaaa

Capacity:aaaaaaaaaaaaaa

Sync:aaaaaaaaaa

Create volume

[HELP]

Enter a unique volume name that has no special characters
and is 16 characters or less.

2. RAID <Enter>

3. RAID <Enter>

4. Disk <Enter>

[SELECT DISKS]

Port Device Model Serial # Size

Status

0 ST3160812AS 9LS0HJA4 149.0GB Non-RAID Disk

1 ST3160812AS 9LS0F4HL 149.0GB Non-RAID Disk

2 ST3160812AS 3LS0JYL8 149.0GB Non-RAID Disk

3 ST3160812AS 9LS0BJ5H 149.0GB Non-RAID Disk

Select 2 to 6 to use in creating the volume.

[↑↓]-Prev/Next [SPACE]-SelectDisk [ENTER]-Done

ROG MAXIMUS X APEX

4-7

5. <Space>

<Enter>

6. RAID RAID 0RAID 10RAID 5

<Enter> 4KB 128KB

RAID 0: 128KB

RAID 10: 64KB

RAID 5: 64KB

7. <Enter>

8. Create Volume <Enter>

WARNING: ALL DATA ON SELECTED DISKS WILL BE LOST.

Are you sure you want to create this volume? (Y/N)

9. <Y> <N> C R E A T E

VOLUME MENU

4-8 RAID

RAID

RAID

RAID

1. 2. Delete RAID Volume <Enter>

[DELETE VOLUME MENU]

Name Level

Drives Capacity Status Bootable

Volume0

RAID0 (Stripe) 2 298.0GB Normal Yes

[HELP]

Deleting a volume will reset the disks to non-RAID.

WARNING: ALL DISK DATA WILL BE DELETED.

(This does not apply to Recovery volumes)

[↑↓]-Select [ESC]-Previous Menu [DEL]-Delete Volume

2. RAID

[DELETE VOLUME VERIFICATION]

ALL DATA IN THE VOLUME WILL BE LOST!

(This does not apply to Recovery volumes)

Are you sure you want to delete "Volume0"? (Y/N):

3. <Y> R A I D <N> D E L E T E

VOLUME MENU

Intel® Rapid Storage Technology Option ROM

1. 5. Exit <Enter>

[CONFIRM EXIT]

Are you sure you want to exit? (Y/N):

2. <Y> <N>

ROG MAXIMUS X APEX

4-9

4.2 RAID

4.2.1 Windows® RAID

Windows® RAID

1. Load Driver

2. RAID USB USB Browse

3. Drivers > RAID RAID

OK

4.

RAID Windows® UEFI

UEFI

4-10 RAID

Q-Code

Code

00

Not used

01

Power on. Reset type detection soft/hard.

02

AP initialization before microcode loading

03

System Agent initialization before microcode loading

04

PCH initialization before microcode loading

06

Microcode loading

07

AP initialization after microcode loading

08

System Agent initialization after microcode loading

09

PCH initialization after microcode loading

0B

Cache initialization

0C – 0D

Reserved for future AMI SEC error codes

0E

Microcode not found

0F

Microcode not loaded

10

PEI Core is started

11 – 14

Pre-memory CPU initialization is started

15 – 18

Pre-memory System Agent initialization is started

19 – 1C

Pre-memory PCH initialization is started

2B – 2F

Memory initialization

30

Reserved for ASLsee ASL Status Codes section below

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37 – 3A

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4F

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50 – 53

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54

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55

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56

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57

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58

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59

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5A

Internal CPU error

5B

Reset PPI is not available

5C – 5F

Reserved for future AMI error codes

ROG MAXIMUS X APEX A-1

Q-Code

Code

E0

S3 Resume is started S3 Resume PPI is called by the DXE IPL

E1

S3 Boot Script execution

E2

Video repost

E3

OS S3 wake vector call

E4 – E7

Reserved for future AMI progress codes

E8

S3 Resume Failed

E9

S3 Resume PPI not Found

EA

S3 Resume Boot Script Error

EB

S3 OS Wake Error

EC – EF

Reserved for future AMI error codes

F0

Recovery condition triggered by firmwareAuto recovery

F1

Recovery condition triggered by userForced recovery

F2

Recovery process started

F3

Recovery firmware image is found

F4

Recovery firmware image is loaded

F5 – F7

Reserved for future AMI progress codes

F8

Recovery PPI is not available

F9

Recovery capsule is not found

FA

Invalid recovery capsule

FB – FF

Reserved for future AMI error codes

60

DXE Core is started

61

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62

Installation of the PCH Runtime Services

63 – 67

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68

PCI host bridge initialization

69

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6A

System Agent DXE SMM initialization is started

6B – 6F

System Agent DXE initializationSystem Agent module specific

70

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78

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79

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7A – 7F

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Q-Code

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9A

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9B

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9C

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9D

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9E – 9F

Reserved for future AMI codes

A0

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A1

IDE Reset

A2

IDE Detect

A3

IDE Enable

A4

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A5

SCSI Reset

A6

SCSI Detect

A7

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A8

Setup Verifying Password

A9

Start of Setup

AA

Reserved for ASLsee ASL Status Codes section below

AB

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AC

Reserved for ASLsee ASL Status Codes section below

AD

Ready To Boot event

AE

Legacy Boot event

AF

Exit Boot Services event

B0

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B1

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B2

Legacy Option ROM Initialization

B3

System Reset

ROG MAXIMUS X APEX A-3

Q-Code

Code

B4

USB hot plug

B5

PCI bus hot plug

B6

Clean-up of NVRAM

B7

Configuration Resetreset of NVRAM settings

B8– BF

Reserved for future AMI codes

D0

CPU initialization error

D1

System Agent initialization error

D2

PCH initialization error

D3

Some of the Architectural Protocols are not available

D4

PCI resource allocation error. Out of Resources

D5

No Space for Legacy Option ROM

D6

No Console Output Devices are found

D7

No Console Input Devices are found

D8

Invalid password

D9

Error loading Boot OptionLoadImage returned error

DA

Boot Option is failedStartImage returned error

DB

Flash update is failed

DC

Reset protocol is not available

ACPI/ASL

Code

03

System is entering S3 sleep state

04

System is entering S4 sleep state

05

System is entering S5 sleep state

30

System is waking up from the S3 sleep state

40

System is waking up from the S4 sleep state

AC

System has transitioned into ACPI mode. Interrupt controller is in PIC mode.

AA

System has transitioned into ACPI mode. Interrupt controller is in APIC mode.

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ROG MAXIMUS X APEX A-5



A handwritten signature in purple ink that reads "Steve Chang". The signature is written in a cursive style.

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)

Responsible Party Name: Asus Computer International

Address: 800 Corporate Way, Fremont, CA 94539.

Phone/Fax No: (510)739-3777/(510)608-4555

hereby declares that the product

Product Name : Motherboard

Model Number : ROG MAXIMUS X APEX

Conforms to the following specifications:

FCC Part 15, Subpart B, Unintentional Radiators

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name : **Steve Chang / President**

Signature :

Date : **Sep. 09, 2016**

Ver. 170324

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